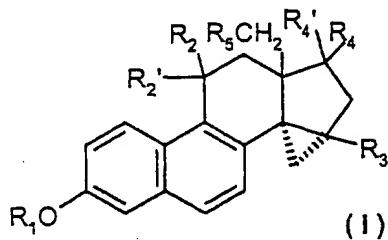


In the Claims:

Please cancel claims 1 to 9 without prejudice and add the following  
claims 10 to 21:

10. An equilenin derivative of formula I:



wherein

R<sub>1</sub> denotes a hydrogen atom, a C<sub>1</sub>-C<sub>5</sub>-alkyl group, a C<sub>1</sub>-C<sub>5</sub>-acyl group or a benzoyl group,

R<sub>2</sub> denotes a hydrogen atom and R'<sub>2</sub> denotes a fluorine atom, a hydroxyl group or a C<sub>1</sub>-C<sub>5</sub>-acyloxy group or R<sub>2</sub> and R'<sub>2</sub> together denote an oxo group,

R<sub>3</sub> denotes a hydrogen atom or a methyl group,

R<sub>4</sub> denotes a hydrogen atom and R'<sub>4</sub> denotes a hydroxyl group or a C<sub>1</sub>-C<sub>11</sub>-acyloxy group or R<sub>4</sub> and R'<sub>4</sub> together denote an oxo group, a

*contd.* methylene group, a halomethylene group or a dihalomethylene group  
*B7* and

$R_5$  denotes a hydrogen atom or a methyl group.

11. The equilenin derivative as defined in claim 10, wherein said  $R_5$  is said hydrogen.

12. An equilenin derivative selected from the group consisting of

$14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene-3,  $11\beta, 17\beta$ -triol,

$11\beta, 17\beta$ -dihydroxy- $14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene-3-yl benzoate,

$11\beta, 17\beta$ -dihydroxy- $14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene-3-yl propionate,

3,  $11\beta$ -dihydroxy- $14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene- $17\beta$ -yl decanoate,

3,  $11\beta$ -dihydroxy- $14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene- $17$ -one,

3-methoxy- $14\alpha, 15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene- $11\alpha, 17\beta$ -diyl diacetate,

*contd.*

*B7*

15 $\beta$ -methyl-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-

3,11 $\beta$ ,17 $\beta$ -triol,

11 $\beta$ -fluoro-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,17 $\beta$ -

diol,

3,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11-

one,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-

11 $\alpha$ ,17 $\alpha$ -diyl diacetate,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylen-11-oxoestra-1,3,5(10),6,8-pentaene-

17 $\alpha$ -yl acetate,

11 $\beta$ -hydroxy-17,17-difluoromethylene-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,

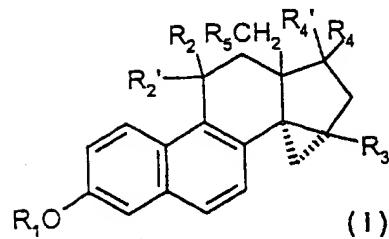
5(10),6,8-pentaene-3-yl benzoate and

14 $\alpha$ ,15 $\alpha$ -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-

pentaene-3,11 $\alpha$ -diol.

13. A method of making an equilenin derivative of formula I:

*contd.*  
*B7*



wherein

$R_1$  denotes a hydrogen atom, a  $C_1$ - $C_5$ -alkyl group, a  $C_1$ - $C_5$ -acyl group or a benzoyl group,

$R_2$  denotes a hydrogen atom and  $R'_2$  denotes a fluorine atom, a hydroxyl group or a  $C_1$ - $C_5$ -acyloxy group or  $R_2$  and  $R'_2$  together denote an oxo group,

$R_3$  denotes a hydrogen atom or a methyl group,

$R_4$  denotes a hydrogen atom and  $R'_4$  denotes a hydroxyl group or a  $C_1$ - $C_{11}$ -acyloxy group or  $R_4$  and  $R'_4$  together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

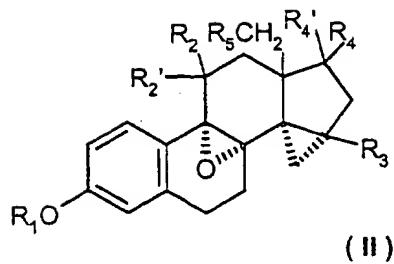
$R_5$  denotes a hydrogen atom or a methyl group;

said method comprising the steps of:

- a) reacting diphosphorus tetraiodide in the presence of pyridine with a compound to formula II:

*contd.*

B7



(II)

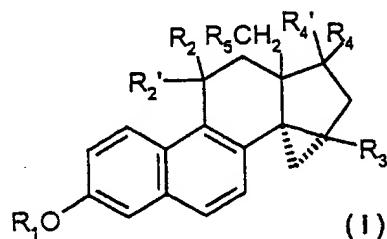
to form an intermediate product, and

b) converting the intermediate product to said equilenin derivative of said formula I.

14. A pharmaceutical composition comprising

at least one member selected from the group consisting of pharmaceutically compatible agents and carriers; and

at least one equilenin derivative of formula I:



(I)

*contd* wherein

*B<sup>7</sup>* R<sub>1</sub> denotes a hydrogen atom, a C<sub>1</sub>-C<sub>5</sub>-alkyl group, a C<sub>1</sub>-C<sub>5</sub>-acyl group or a benzoyl group,

R<sub>2</sub> denotes a hydrogen atom and R'<sub>2</sub> denotes a fluorine atom, a hydroxyl group or a C<sub>1</sub>-C<sub>5</sub>-acyloxy group or R<sub>2</sub> and R'<sub>2</sub> together denote an oxo group,

R<sub>3</sub> denotes a hydrogen atom or a methyl group,

R<sub>4</sub> denotes a hydrogen atom and R'<sub>4</sub> denotes a hydroxyl group or a C<sub>1</sub>-C<sub>11</sub>-acyloxy group or R<sub>4</sub> and R'<sub>4</sub> together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R<sub>5</sub> denotes a hydrogen atom or a methyl group.

15. A pharmaceutical composition comprising

at least one member selected from the group consisting of pharmaceutically compatible agents and carriers; and

at least one equilenin derivative selected from the group consisting of:

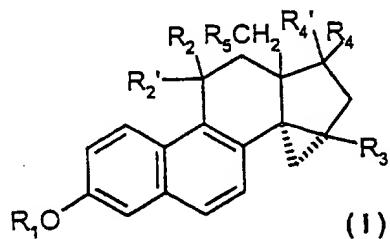
*contd.* 14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,11 $\beta$ ,17 $\beta$ -triol,  
*B<sup>7</sup>* 11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-  
3-yl benzoate,  
11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-  
3-yl propionate,  
3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-  
17 $\beta$ -yl decanoate,  
3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-17-  
one,  
3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11 $\alpha$ ,17 $\beta$ -  
diyl diacetate,  
15 $\beta$ -methyl-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-  
3,11 $\beta$ ,17 $\beta$ -triol,  
11 $\beta$ -fluoro-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,17 $\beta$ -  
diol,  
3,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11-  
one,  
3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-  
11 $\alpha$ ,17 $\alpha$ -diyl diacetate,

contd.

B7

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylen-11-oxoestra-1,3,5(10),6,8-pentaene-17 $\alpha$ -yl acetate,  
11 $\beta$ -hydroxy-17,17-difluoromethylene-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,  
5(10),6,8-pentaene-3-yl benzoate and  
14 $\alpha$ ,15 $\alpha$ -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-  
pentaene-3,11 $\alpha$ -diol.

16. A method of geroprophylaxis in men and women, said method comprising administering to a person an effective amount for said geroprophylaxis of at least one equilenin derivative of formula I:



wherein

R<sub>1</sub> denotes a hydrogen atom, a C<sub>1</sub>-C<sub>5</sub>-alkyl group, a C<sub>1</sub>-C<sub>5</sub>-acyl group or a benzoyl group,

R<sub>2</sub> denotes a hydrogen atom and R'<sub>2</sub> denotes a fluorine atom, a

*contd.* hydroxyl group or a C<sub>1</sub>-C<sub>5</sub>-acyloxy group or R<sub>2</sub> and R'<sub>2</sub> together

*B7* denote an oxo group,

R<sub>3</sub> denotes a hydrogen atom or a methyl group,

R<sub>4</sub> denotes a hydrogen atom and R'<sub>4</sub> denotes a hydroxyl group or a C<sub>1</sub>-C<sub>11</sub>-acyloxy group or R<sub>4</sub> and R'<sub>4</sub> together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

R<sub>5</sub> denotes a hydrogen atom or a methyl group.

17. A method of geroprophylaxis in men and women, said method comprising administering to a person an effective amount for said geroprophylaxis of at least one equilenin derivative selected from the group consisting of:

14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 $\beta$ ,17 $\beta$ -triol,

11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate,

11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl propionate,

3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-17 $\beta$ -yl decanoate,

*contd.* 3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-17-one,  
~~B7~~

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11 $\alpha$ ,17 $\beta$ -diyl diacetate,

15 $\beta$ -methyl-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,11 $\beta$ ,17 $\beta$ -triol,

11 $\beta$ -fluoro-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,17 $\beta$ -diol,

3,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11-one,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11 $\alpha$ ,17 $\alpha$ -diyl diacetate,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylen-11-oxoestra-1,3,5(10),6,8-pentaene-17 $\alpha$ -yl acetate,

11 $\beta$ -hydroxy-17,17-difluoromethylene-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3-yl benzoate and

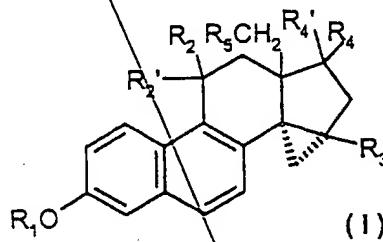
14 $\alpha$ ,15 $\alpha$ -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-pentaene-3,11 $\alpha$ -diol.

*contd.*

*§ 7*

18. A method of therapeutic treatment of men and women having diseases or organs or tissues caused, at least in part, by oxygen radicals, said method comprising administering to a person an effective amount for said therapeutic treatment of at least one equilenin derivative of formula I:

*Sub  
Cl*



wherein

$R_1$  denotes a hydrogen atom, a  $C_1$ - $C_5$ -alkyl group, a  $C_1$ - $C_5$ -acyl group or a benzoyl group,

$R_2$  denotes a hydrogen atom and  $R'_2$  denotes a fluorine atom, a hydroxyl group or a  $C_1$ - $C_5$ -acyloxy group or  $R_2$  and  $R'_2$  together denote an oxo group,

$R_3$  denotes a hydrogen atom or a methyl group,

$R_4$  denotes a hydrogen atom and  $R'_4$  denotes a hydroxyl group or a  $C_1$ - $C_{11}$ -acyloxy group or  $R_4$  and  $R'_4$  together denote an oxo group, a

*contd.*  
B7  
Sub C'

methylene group, a halomethylene group or a dihalomethylene group

and

R<sub>5</sub> denotes a hydrogen atom or a methyl group.

19. A method of therapeutic treatment of men and women having diseases or organs or tissues caused , at least in part, by oxygen radicals, said method comprising administering to a person an effective amount for said therapeutic treatment of at least one equilenin derivative selected from the group consisting of:

14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3, 11 $\beta$ ,17 $\beta$ -triol,

11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl benzoate,

11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-3-yl propionate,

3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-17 $\beta$ -yl decanoate,

3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-17-one,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1, 3, 5(10),6,8-pentaene-11 $\alpha$ ,17 $\beta$ -diyl diacetate,

*contd.*

*B7*

*Sub  
C2*

15 $\beta$ -methyl-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-

3,11 $\beta$ ,17 $\beta$ -triol,

11 $\beta$ -fluoro-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-3,17 $\beta$ -

diol,

3,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11-one,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaene-11 $\alpha$ ,17 $\alpha$ -diyl diacetate,

3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylen-11-oxoestra-1,3,5(10),6,8-pentaene-17 $\alpha$ -yl acetate,

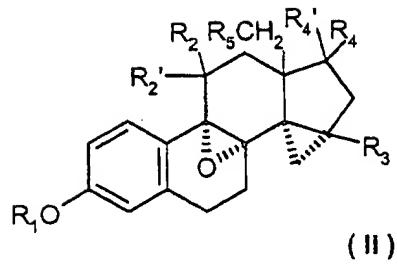
11 $\beta$ -hydroxy-17,17-difluoromethylene-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,

5(10),6,8-pentaene-3-yl benzoate and

14 $\alpha$ ,15 $\alpha$ -methylene-17,17-bis-methyleneestra-1,3,5(10),6,8-pentaene-3,11 $\alpha$ -diol.

20. A cyclopropano steroid of formula II:

*contd.*  
B7



wherein

$R_1$  denotes a hydrogen atom, a  $C_1$ - $C_5$ -alkyl group, a  $C_1$ - $C_5$ -acyl group or a benzoyl group,

$R_2$  denotes a hydrogen atom and  $R'_2$  denotes a fluorine atom, a hydroxyl group or a  $C_1$ - $C_5$ -acyloxy group or  $R_2$  and  $R'_2$  together denote an oxo group,

$R_3$  denotes a hydrogen atom or a methyl group,

$R_4$  denotes a hydrogen atom and  $R'_4$  denotes a hydroxyl group or a  $C_1$ - $C_{11}$ -acyloxy group or  $R_4$  and  $R'_4$  together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

$R_5$  denotes a hydrogen atom or a methyl group.

21. A cyclopropano steroid selected from the group consisting of